Insect Identification Guide for Southeastern Landscapes
How to use this booklet

Go to the tab that best exemplifies the damage observed on ornamental plants or turfgrass. Some insects are not easily seen. Sometimes a magnifying glass or a microscope is needed. The type of damage caused can provide evidence of the culprit. Not all insects cause damage and many benefit your garden. You will find many of these insects in the beneficial insects section of this book.

Key
Size of the insect:

needs magnification to be observed

1/8” to 1/2” long

1/2” long or more

Practice Integrated Pest Management (IPM)
Before choosing a course of action about an insect in the garden, remember the four principles of IPM:

- Monitor the garden
- Identify the insect or problem
- Evaluate the situation and predict the impact of the damage, if any
- Make a decision about the best course of action and choose your control methods

Consult your county Extension agent and state pest control handbook regarding the choice of control methods. Always follow pesticide labels and use proper precautions before handling pesticides.

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photographs: Bugwood.org
Pest insects of ornamental plants

Needs magnification to be observed

1/8" to 1/2" long

1/2" long or more
Some insects, especially those that cause chewing damage to plants, are beautiful additions to the garden at later stages in their life. Take a look at the caterpillars and see what they become before you decide to take action.

Pretty or pest?

Cabbage butterfly larva

Tiger swallowtail larva

Monarch butterfly larva

Tiger swallowtail butterfly

Cabbage butterfly

Monarch butterfly
Chewing damage

CLUES
Scraped or chewed leaves or flowers. Frass and webbing.

Examples

possible culprits
Beetles

Flea beetles (adults)

Flea beetles (larvae)

Japanese beetles (adults)

Tortoise beetle

Viburnum leaf beetle (adult)

Viburnum leaf beetle (larvae)
Caterpillars

Azalea caterpillar

Bagworm

Fall webworm

Oak leaf caterpillar

Tent caterpillar

Yellownecked caterpillar
Grasshoppers & Sawflies

American grasshopper

Differential grasshopper

Bristly roseslug sawfly (larva)

Oak sawfly (larva)

Redheaded pine sawfly (larvae)

Roseslug sawfly (larva)
Dieback damage

**CLUES**
Unusual wilting, drying or death of a branch or twig on an otherwise healthy plant.

**Examples**

Possible culprits
Scales

**Armored Scales**

- Euonymus scale
- Tea scale

**Soft Scales**

- Lecanium scale
- Wax scale
Dieback damage

In addition to unusual wilting or drying, look for frass in branch crotches or frass ‘toothpicks.’

Examples

Possible culprits
Borers

Emerald ash borer (adult)  
Emerald ash borer (larva)  
Flat-headed apple tree borer (adult)  
Flat-headed apple tree borer (larva)  
Goldenrod locust borer  
Granulate ambrosia beetle
Distortion damage

CLUES
Abnormally shaped or colored deformation of plant parts. Some of these can also be symptoms of plant diseases.

Galls

possible culprits
Insects & mites that make galls

Adelgid

Psyllid

Cynipid wasp

Eriophyid mite (adult)
Leaf curling

Culprits

Aphid

Thrips
Leaf mines

Azalea leaf damage

Boxwood leaf damage

Holly leaf damage

Culprits

Azalea leaf miner (moth)

Boxwood leaf miner (fly)

Holly leaf miner (fly)
Stippling damage

CLUES
Chlorotic spots. Also look for frass, cast skins and webbing.

Examples

possible culprits
Lace bugs

Azalea lace bug

Hawthorn lace bug

Mites

Southern red mites and eggs

Two-spotted spider mite
Pest insects of turf
While visual evidence of insect damage to turfgrass is often seen above ground, damage can be caused by insects that live either above ground or below ground. **Proceed to the tabbed section that best exemplifies observable damage.**

**Sampling**
Several techniques are used to confirm the presence of insects in turfgrass.

**Sampling method key**
- Flotation sampling
- Soap flush sampling
- Soil sampling
Above ground pests

Chewed or shredded leaves, leaves with shot-holes, cut stems, abnormal yellowing or drying of leaves. Also look for frass, webbing or spittle-like substance on leaves.

Examples of damage
Chewing pests

Armyworm (larva)  Armyworm adult (moth)

Fall armyworm (larva)  Fall armyworm adult (moth)

Billbug adult  Sod webworm adult (moth)
Sucking pests

Chinch bug (adults)

Chinch bug (nymphs)

Spittle bug (adult)

Spittle bug (nymph)
Below ground pests

CLUES
Abnormal yellow, brown, wilted or dried up patches of turfgrass.

Examples of damage

possible culprits
Possible culprits

Billbug (larva) by W. Cranshaw

May-June beetle (grubs) by D. Cappaert

May-June beetle (adults) by T. S. Price

Mole crickets by UGA Archive

Mole crickets
Beneficial insects
Beneficial insects in the landscape

Beneficial insects include predators and parasitoids. They prey on pest insects or use them as hosts for the parasitoids’ young. Such insects are beneficial because they remove pests from the environment.
Predators prey on pest insects. Predators are generally larger, faster and stronger than their prey and often capture and eat many individuals during their life cycle.

Example
Beetles

Ground beetle

Lady beetle larvae, eggs and adult

Rove beetle

Tiger beetle
Dragonflies

D. Cappaert

Damselflies

J.N. Dell

G. Braman
Flies

Long-legged fly

Robber fly

Syrphid fly (adult)

Syrphid fly (larva) with aphid prey
Lacewings

Brown lacewing

Dusty wing

Green lacewing

Lacewing eggs

Lacewing larva
**Mantids**

- Praying mantid adult
- Praying mantid egg case

**Wasps**

- Paper wasp
- Sphecid wasp
Spiders & Mites

Flower spider

Green lynx spider

Spiny orb weaver

Zipper spider

Predatory mite

Predatory mite
True bugs

Assassin bug

Predatory stink bug

Damsel bug

Minute pirate bug

Big-eyed bug

Wheel bug
Parasitoids

Parasitoids are insects that live and develop as parasites on other insects (hosts) and eventually kill them. Parasitoids usually complete their development on a single individual host.

**Parasitoids at work**

- Azalea lace bug egg parasitoid
- Parasitized lace bug egg with exit hole
- Mummified (top) and healthy aphids
- Parasitoid larva inside mummified aphid
Parasitoids at work

Parasitized caterpillar

Parasitized caterpillar with eggs

Parasitized stink bug with egg

parasitoids
Flies & Wasps

Tachinid fly

Braconid wasp

Ichneumonid wasp

Eulophid wasp

Pteromalid wasp
Useful terms

**Bugs**
“True bugs” are insects belonging to the suborder *Heteroptera*, under order *Hemiptera*. Sometimes “bugs” is misused as a generic term for insects.

**Cast skins**
Dried skins left by immature insects after they molt.

**Chlorotic spots**
Pale yellow, green or white spots on leaves caused when sucking pests draw out plant sap.

**Frass**
Insect fecal matter.

**Larva(e)**
Immature insects that do not resemble the adult(s).

**Nymph(s)**
Immature insects that resemble the adult.

**Predator**
Insects or other organisms that prey on other insects. Predators are generally larger, faster and stronger than their prey and often capture and eat many individuals during their life cycle.

**Parasitoids**
Insects that live and develop as parasites on other insects (hosts) and eventually kill them. Parasitoids usually complete their development on a single individual host.

**Flotation sampling**
Method to sample turf insects (e.g., chinch bugs), done by inserting one end of a hollow, cylindrical container into the turfgrass and filling it with water. Insects, if present, will float to the top and can be counted.

**Soap flush sampling**
Method to sample turf insects (e.g., sod webworms and other caterpillars), done by drenching a unit area of turfgrass (e.g., 2’ x 2’) with soapy water (2 fl. oz. liquid dish detergent in 1 gal. water). Caterpillars, if present, get irritated by the soap and crawl to the surface, and can be counted and identified.

**Soil sampling**
Method to sample soil-dwelling insects (e.g., white grubs and bill bug grubs), done by digging about 6 inches deep into a unit area of soil (e.g., 1’ x 1’), at several points over the turfgrass. Grubs, if present, will be exposed and can be counted.
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